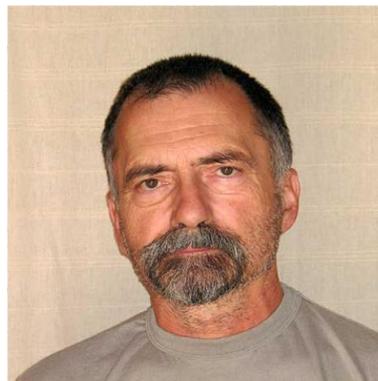


**Letter of Reference for PhET Project,
University of Colorado
By Sandor Nagy
Budapest, Hungary**



I am a nuclear chemist working for Eötvös Loránd University (ELTE), which is considered the most prestigious (and definitely the oldest) university in Hungary.

I first contacted PhET exactly two years ago, on May 5, 2009, while working on a nuclear glossary in Hungarian (with free access for anybody not only for the ELTE community), which was planned to have lots of supporting pages with background information and – most importantly – with didactic simulations preferably in Hungarian too, because Hungarian people on an average are not as good at foreign languages (including English) as the citizens of West European countries.

I have collected many simulations from colleagues from all around the world who let me publish theirs on my pages (crediting them as authors of course) and some of them even sent me the source files of the sims so that I could translate them to Hungarian.

I was looking for a good simulation on alpha decay on the net when I found the PhET site. I could hardly believe my eyes: lots of great simulations offered for free and they even provided tools to translate them to any language practically. I immediately grabbed the opportunity and translated a number of simulations, first of all those related to nuclear science.

Later on I realized that I was not the first Hungarian who discovered the PhET site, because 28 sims had already been translated to Hungarian between 2008 and 2009 by two high-school teachers (and their colleagues) who use these in classes and for homework ever since.

The “quantum leap” in my relationship with PhET occurred in the second half of 2010, when they decided to go totally international by encouraging foreigners like me (who care about spreading scientific literacy in their countries) to translate the whole site to their mother tongues.

You must realize how important step this was. You, who read this, are probably American. It means that your mother tongue is most likely English, the international language of science (and of most everything that matters). You have met lots of foreign people like me, and you probably have had the (false) impression that apart from the funny accent and some minor differences they are good in English. I have been lucky, because I had the opportunity to spend almost four years in the US at two universities. I was well accepted by the staff and the students. I was even offered to stay. One of the main reasons that I came home both times was that I always felt kind of “less intelligent” (or more stupid – you name it) in English than in Hungarian. I have translated some good fiction since then, but I still feel the same way: my English personality (if there is such) will always remain inferior to my Hungarian one.

If you truly understand the importance of the previous paragraph you will also understand why I had such a strong urge to translate the site (and the un-translated 60 or so simulations).

The translation work was an intensive activity that required daily communication between me and the PhET team. That was the time when I started to appreciate them not only as an effective team together but also individually. The team members were always ready to help (even if I

made a shortcut and approached them directly rather than through phethelp) and open to suggestion. Actually, I started to feel like a virtual member of the team. (This also answers the question whether I am directly acquainted with the project, product, organization, or work. Yes, I am.) Since I am no different than any of their “clients”, it is logical to assume that I share this feeling with many others who find the PhET’s mission important enough to help them by volunteering as translators.

This readiness to cooperate with “users” is part of their success I think.

I am skeptical by nature as most people are in Hungary (due to old nice Communist slogans which had become discredited). Therefore I rarely confess (although it is true) that I like to do things which are important for other people. Before I got more closely involved with the PhET team (whom I have never met by the way), PhET appeared to me as a “black box” (http://en.wikipedia.org/wiki/Black-box_testing) appears to an experimenter. Whatever input (question, suggestion) I fed in, I got an output signal (prompt answer, help) which was in agreement with the hypothesis that PhET is a body which provides service and devoted to spread knowledge in science world-wide for the sake of humanity. As a skeptic I am well aware of how unbelievably idealistic this hypothesis sounds, but all the “experimental proofs” have supported this conclusion. (Of course you don’t need a scientist to arrive at this conclusion, considering the proverb: If it looks like a duck, acts like a duck, quacks like a duck, waddles like a duck it probably is a duck.) Now, after about 200 to 300 emails having exchanged with them I start to feel their personalities and I am quite positive that the conclusion is true: they are working for PhET not only for living but because they feel that they – as part of an effective team – help an important mission to be fulfilled for the sake of humankind.

In the present case, of course, it is much easier for me to phrase the above statement, because I understand that the expressed goal of the Tech Awards is to strengthen this type of attitude and behavior among people and organizations, and therefore I can trust that my words are taken as seriously as I mean them.

I am convinced that if an award goes to the PhET project, then it goes to the right place. They are definitely the “best in the field”.

I feel privileged that I was asked by PhET to write this reference letter for them.

Budapest, May 5, 2011

Sándor Nagy

<http://nasa.web.elte.hu/>

Additional points to support the worthiness of recognition

1. To the language issue.

Everybody can think best on his/her own language. You can judge this by checking the list of languages to which the whole site has been translated so far. Danish is among them. Denmark is like the Benelux countries: everybody speaks excellent English there. (Note that 95 sims out of 102 have also been translated to Dutch, although you could hardly find anybody in the Netherlands who would not speak both German and English.) However, someone over there thought it was still worth translating the PhET site. (The person finished this work probably as an unpaid volunteer just like me, because he/she thought it was an important goal to work for.) There is another thing which makes me feel good that I took part in helping PhET to go

international (even if I only represent a relatively small nation). Before I did the site translation, I only realized that their sims help me in what I want to do. Now I know that I could have done better my teaching had I known their ideas about sooner. Now a lot of Hungarian teachers can learn about these ideas, because they can read about them in their own language. By chance, I have just finished with a large project for Springer. I was the second editor out of five of the six-volume Handbook of Nuclear Chemistry (<http://www.springer.com/chemistry/book/978-1-4419-0720-2>). Personally I consider my little contribution to the PhET project just as important on my list of usefulness as my contribution to the publication of the Springer book.

2. About the impact of PhET as judged from Google search

I was revising the translation of the sim “Ladybug Revolution” (<http://phet.colorado.edu/en/simulation/rotation>), and I was dissatisfied with the Hungarian title. In our language, namely, there are two different words for the physical and the “historical” meanings of the word revolution, none of which is similar to the Latin original. So the playfulness of the original title was gone. I was curious about a possible “twist” in the title (another layer of association), and tried to find it out using Google. Bad news for me, good news for PhET: I got an endless list of references to the PhET simulation and practically nothing else. You can try it, search for “ladybug revolution”.

3. About the growing impact of PhET in Hungary

One of the executives of the Eötvös Loránd Physical Society (Éva Moróné Tapody) who has a mailing list to 1700 Hungarian physics teachers wrote a letter to them about the Hungarian PhET site. I have placed a little “ad” on some of my relevant pages including my Hungarian homepage (<http://nasa.web.elte.hu/defhu.htm>). I have 70 chemistry students in this semester: they should know about the site because I use a number of PhET sims in my lectures. Only 3 days ago I gave a seminar to my colleagues at the Institute of Chemistry about simulations in teaching. I also introduced them to the Hungarian PhET site. They were really impressed, especially when I showed them some examples as well. The present impact may not be that large, but since we teach most would-be teachers in Hungary, the effect is expected to grow rapidly.

4. Importance of the fact that PhET is free

A few years ago I edited an electronic encyclopedia for UNESCO (<http://www.eolss.net/E6-104-toc.aspx>). They had an international meeting in Budapest 2 years ago which I attended. Having listened to the African speakers I realized which I should have known from the news: a European or a US citizen cannot really imagine how poor some African nations are. In the poorest countries the little money goes for emergency, food or who knows what. There is hardly any money left for teaching. Not even for books. But suppose that the teacher has an old computer. Maybe he/she can get the downloaded versions of PhET sims. Maybe there is electricity in the class. That can be a great help for the students.